

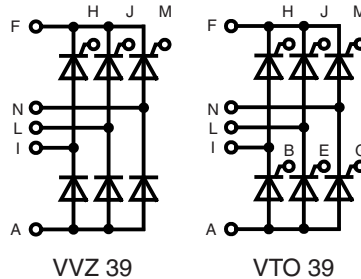
# Three Phase Rectifier Bridge

$$I_{dAV} = 39 \text{ A}$$

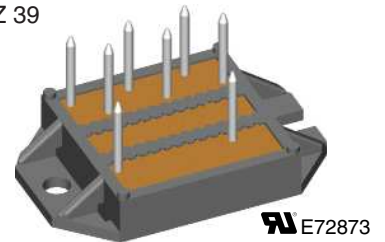
$$V_{RRM} = 800/1200 \text{ V}$$

## Preliminary data

| $V_{RSM}$ | $V_{RRM}$ | Type                      |
|-----------|-----------|---------------------------|
| $V_{DSM}$ | $V_{DRM}$ |                           |
| V         | V         |                           |
| 900       | 800       | VTO 39-08ho7 VVZ 39-08ho7 |
| 1300      | 1200      | VTO 39-12ho7 VVZ 39-12ho7 |

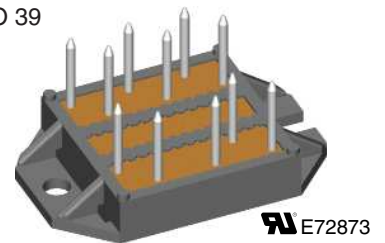


VVZ 39



E72873

VTO 39



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| Symbol         | Conditions                                                                                                                                                 | Maximum Ratings                                       |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| $I_{dAV}$ ①    | $T_C = 85^\circ\text{C}$ ; module                                                                                                                          | 39 A                                                  |
| $I_{TAVM}$     | $T_C = 85^\circ\text{C}$ (180° sine; per thyristor)                                                                                                        | 16 A                                                  |
| $I_{TSM}$      | $T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz)                                                                                                    | 200 A                                                 |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz)                                                                                                                     | 210 A                                                 |
|                | $T_{VJ} = T_{VJM}$ $t = 10 \text{ ms}$ (50 Hz)                                                                                                             | 180 A                                                 |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz)                                                                                                                     | 190 A                                                 |
| $I^2t$         | $T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz)                                                                                                    | 200 A <sup>2</sup> s                                  |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz)                                                                                                                     | 150 A <sup>2</sup> s                                  |
|                | $T_{VJ} = T_{VJM}$ $t = 10 \text{ ms}$ (50 Hz)                                                                                                             | 160 A <sup>2</sup> s                                  |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz)                                                                                                                     | 150 A <sup>2</sup> s                                  |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ $f = 50 \text{ Hz}$ ; $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.15 \text{ A}$ $di_G/dt = 0.15 \text{ A}/\mu\text{s}$ | repetitive; $I_T = 20 \text{ A}$ 100 A/ $\mu\text{s}$ |
|                |                                                                                                                                                            | non repetitive; $I_T = I_{TAVM}$ 500 A/ $\mu\text{s}$ |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ ; $V_D = \frac{2}{3} V_{DRM}$ $R_{GK} = \infty$ , method 1 (linear voltage rise)                                                        | 500 V/ $\mu\text{s}$                                  |
| $V_{RGM}$      |                                                                                                                                                            | 10 V                                                  |
| $P_{GM}$       | $T_{VJ} = T_{VJM}$ $t_p = 30 \mu\text{s}$                                                                                                                  | $\leq 5 \text{ W}$                                    |
|                | $I_T = I_{TAVM}$ $t_p = 300 \mu\text{s}$                                                                                                                   | $\leq 2.5 \text{ W}$                                  |
| $P_{GAVM}$     |                                                                                                                                                            | 0.5 W                                                 |
| $T_{VJ}$       |                                                                                                                                                            | -40...+125 °C                                         |
| $T_{VJM}$      |                                                                                                                                                            | 125 °C                                                |
| $T_{stg}$      |                                                                                                                                                            | -40...+125 °C                                         |
| $V_{ISOL}$     | 50/60 Hz, RMS $t = 1 \text{ min}$                                                                                                                          | 2500 V~                                               |
|                | $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$                                                                                                             | 3000 V~                                               |
| $M_d$          | Mounting torque (M4)                                                                                                                                       | 1.5 - 2 Nm                                            |
|                |                                                                                                                                                            | 14 - 18 lb.in.                                        |
| Weight         | Typ.                                                                                                                                                       | 18 g                                                  |

① for resistive load at bridge output.

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20200117b

### Features

- Package with DCB ceramic base plate
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

### Applications

- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

### Advantages

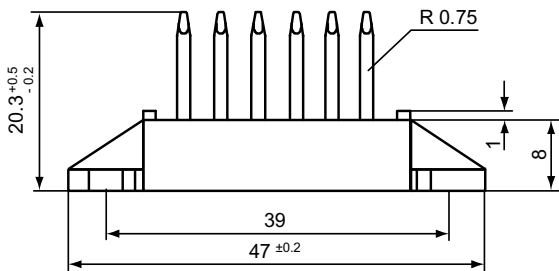
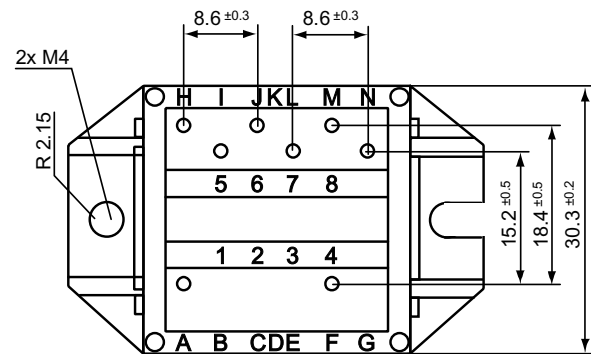
- Easy to mount with two screw
- Space and weight savings
- Improved temperature & power cycling capability
- Small and light weight

Data according to IEC 60747 and refer to a single diode unless otherwise stated

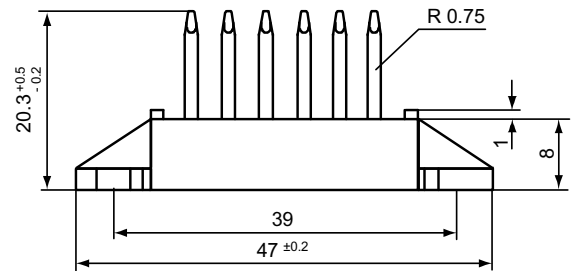
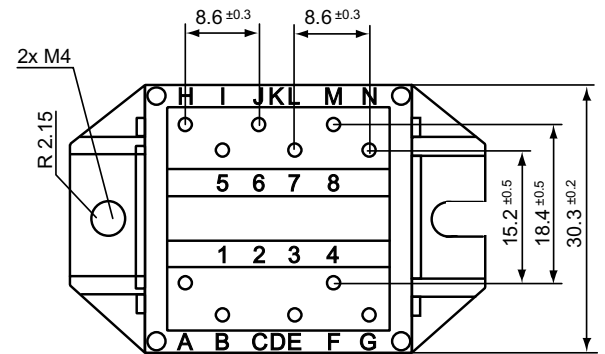


| Symbol               | Conditions                                                                               | Characteristic Values                                       |                  |             |                  |
|----------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------|-------------|------------------|
| $I_D; I_R$           | $V_R = V_{RRM}; V_D = V_{DRM}$                                                           | $T_{VJ} = T_{VJM}$                                          | $\leq$           | 5           | mA               |
| $V_T$                | $I_T = 20 \text{ A}$                                                                     | $T_{VJ} = 25^\circ\text{C}$                                 | $\leq$           | 1.6         | V                |
| $V_{T0}$             | For power-loss calculations only                                                         | $T_{VJ} = 125^\circ\text{C}$                                |                  | 0.85        | V                |
| $r_T$                |                                                                                          |                                                             |                  | 27          | mΩ               |
| $V_{GT}$             | $V_D = 6 \text{ V}$                                                                      | $T_{VJ} = 25^\circ\text{C}$<br>$T_{VJ} = -40^\circ\text{C}$ | $\leq$<br>$\leq$ | 1.5<br>2.5  | V<br>V           |
| $I_{GT}$             | $V_D = 6 \text{ V}$                                                                      | $T_{VJ} = 25^\circ\text{C}$<br>$T_{VJ} = -40^\circ\text{C}$ | $\leq$<br>$\leq$ | 25<br>50    | mA<br>mA         |
| $V_{GD}$<br>$I_{GD}$ | $V_D = \frac{2}{3}V_{DRM}$                                                               | $T_{VJ} = T_{VJM}$                                          | $\leq$<br>$\leq$ | 0.2<br>3    | V<br>mA          |
| $I_L$                | $t_p = 10 \mu\text{s}$<br>$I_G = 0.1 \text{ A}; di_G/dt = 0.1 \text{ A}/\mu\text{s}$     | $T_{VJ} = 25^\circ\text{C}$                                 | $\leq$           | 75          | mA               |
| $I_H$                | $V_D = 6 \text{ V}; R_{GK} = \infty$                                                     | $T_{VJ} = 25^\circ\text{C}$                                 | $\leq$           | 50          | mA               |
| $t_{gd}$             | $V_D = \frac{1}{2}V_{DRM}$<br>$I_G = 0.1 \text{ A}; di_G/dt = 0.1 \text{ A}/\mu\text{s}$ | $T_{VJ} = 25^\circ\text{C}$                                 | $\leq$           | 2           | μs               |
| $R_{thJC}$           | per thyristor / diode; DC<br>per module                                                  |                                                             |                  | 1.3<br>0.22 | K/W<br>K/W       |
| $R_{thJH}$           | per thyristor / diode; DC<br>per module                                                  |                                                             |                  | 1.8<br>0.3  | K/W<br>K/W       |
| $d_s$                | Creeping distance on surface                                                             |                                                             |                  | 11.2        | mm               |
| $d_A$                | Creepage distance in air                                                                 |                                                             |                  | 5           | mm               |
| $a$                  | Max. allowable acceleration                                                              |                                                             |                  | 50          | m/s <sup>2</sup> |

Dimensions in mm (1 mm = 0.0394")



VVZ 39



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